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| **Physics 135B: College Physics II** | |
| **Spring 2017** | |
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| **General Information** | |
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| Professor | Dr. Serkan Zorba |
| Office | SLC 211B |
| Phone | 907-4200 Ext. 4450 |
| E-mail | szorba@whittier.edu |
| Class meets | Mon&Wed 8:50-10:50am, in SLC 228 |
| Office hours | MTWR 11:00am-Noon |
| Textbook | OpenStax *College Physics (open textbook pdf available at* [*https://openstaxcollege.org/textbooks/college-physics/pdf*](https://openstaxcollege.org/textbooks/college-physics/pdf) |
| Course description | PHYS 135B is the second part of PHYS 135 College Physics course. It will cover topics of electricity, magnetism, and modern physics.  PHYS 135 is designed for students who require a year of lab physics as part of a pre-health program. It constitutes a suitable year-long physics experience. The topics covered in are selected so as to cover a good portion of MCAT physics content, but not all, as this is not an MCAT prep course. There will be a significant amount of material covered. The pace of the course, therefore, will be hasty. So be prepared! The labs and activities will be incorporated to the lecture in a workshop format. The class will meet twice a week. You are expected to keep an activity notebook.  We will continue to implement active teaching/learning technique Peer Instruction throughout this course. Peer Instruction has been shown to be an effective teaching technique that helps students establish a more thorough and permanent understanding of the material covered. You are encouraged to pre-read the upcoming sections of our textbook for a given week by referring to the detailed topics-schedule handed out to you.  Students desiring accommodations on the basis of physical, learning, or psychological disability for this class are to contact Disability Services.  Disability Services is located on the ground floor of the Library building and can be reached by calling extension 4825. |
| Attendance policy | Due to the active-learning format of this course, attendance is crucial. If you miss two classes without a valid excuse your grade will go down by one letter grade (your valid excuse MUST be documented by, for example, a note from your physician. Conflict with your job does NOT constitute a valid excuse!). However, please note that there won’t be a chance to make up for it. Bring your notes to me without being asked! |
| Grading | 1st Midterm Exam: 20% (Mar 8, Wed)  2nd Midterm Exam: 20% (Apr 12, Wed, non-cumulative)  Homework: 15% (Late homework not accepted)  Group Projects: 10%  Quizzes: 10%  Final: 25% (cumulative) (Friday, May 5, 2016 at 10:30am-12:30pm) |
| Homework | Homework will be posted on the course website, and will be due in class a week after it is given. Homework solutions will be posted on the website right after the due date. No homework will be accepted after the class! |
| Group Projects | You, as a group, will be asked to do a small hands-on project relevant to a topic being covered. Completed projects will be demonstrated in front of the class by each group. |
| Things to remember | If you need a high grade in the class, you can get it only by putting in the necessary effort.  Cell phones must be off during the class!  Don’t be tardy.  Respect yourself, respect others.  College education is a trade, you certainly give a lot of money… and how much will you get out of it? That depends on how much effort you are prepared to put in. Your primary reason for being here is education, other things should be secondary. |

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| Learning objectives of this course | The Phys 135B students will have an understanding of introductory electricity, magnetism, and modern physics, which are among the basic subject areas of physics.  The Phys 135B students will have an understanding of the concepts and methods of these introductory topics and their application to solving relevant problems. These are:  -The ability to solve problems. This entails learning how to:  (i) Break a problem into component parts.  (ii) Choose the pertinent physical principles involved.  (iii) Make appropriate approximations.  (iv) Recognize if a result is reasonable or not.  (v) Translate verbal information into mathematical form.  -Familiarity with and facility in the use of visual techniques (graphs etc.) to describe, explain, and interpret physical phenomena.  -Familiarity with and facility in experimental technique. This entails learning how to:  (i) Follow written directions.  (ii) Analyze experimental results.  (iii) Design one's own experimental procedures.  (iv) Determine whether an experimental design is "good" or  "bad".  (v) Use sophisticated equipment. |

Phys 135B topics schedule:

Note the attendance policy above!

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| **Date** | **Reading Assignment** | **Topic** |
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| Jan 30 | Chp 18 Sects 1, 2 | Course Introduction and Policies  Electric Charge, Insulators and Conductors, Electroscope |
| Feb 1 | Chp 18 Sects 1, 2 | Electric Charge, Insulators and Conductors, Electroscope |
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| Feb 6 | Chp 18 Sects 3 | Coulomb’s Law, Vectors |
| Feb 8 | Chp 18 Sects 3 | Coulomb’s Law, Vectors |
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| Feb 13 | Chp 18 Sects 4, 5 | Electric Field and Field Lines |
| Feb 15 | Chp 18 Sects 7 | Electric Fields and Conductors |
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| Feb 20 | Chp 18 Sects 7 | Electric Fields and Conductors |
| Feb 22 | Chp 19 Sects 1, 2, 3, 4 | Electric Potential Energy, Electric Potential, Equipotential Lines |
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| Feb 27 | Chp 19 Sects 1, 2, 3, 4 | Electric Potential Energy, Electric Potential, Equipotential Lines |
| Mar 1 | Chp 19 Sects 5, 6, 7 | Electric Dipole Moment, Capacitance, Dielectrics, Storage of Electric Energy |
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| Mar 6 | Chp 20 Sects 1, 2, 3, 4 | Electric Currents, Resistance, Ohm’s Law, Electric Power |
| Mar 8 | **EXAM 1** |  |
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| Mar 13 | Spring Break |  |
| Mar 15 | Spring Break |  |
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| Mar 20 | Chp 20 Sect 5, Chp 21 Sects 1-4 | Alternating Current, Electric Circuits |
| Mar 22 | Chp 22 Sects 1, 2, 3, 4, 5 | Magnetism, Magnets, Magnetic Field |
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| Mar 27 | Chp 22 Sects 6, 7, 8, 9, 10 | Magnetic Force |
| Mar 29 | Chp 23 Sects 1, 2, 3 | Electromagnetic Induction and Faraday’s Law |
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| Apr 3 | Chp 23 Sects 1, 2, 3 | Electromagnetic Induction and Faraday’s Law |
| Apr 5 | Chp 29 Sects 1, 2 | Intro to Modern Physics, Blackbody Radiation, Planck’s Quantum Hypothesis |
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| Apr 10 | Chp 29 Sects 3, 4 | Photon Theory of Light, and the Photoelectric Effect |
| Apr 12 | **EXAM 2** (non-cumulative) |  |
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| Apr 17 | Chp 29 Sects 5, 6, 7 | Photons, Wave-Particle Duality |
| Apr 19 | Chp 30 Sects 1, 2, 3, 4 | Early Models of the Atom |
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| Apr 24 | Chp 30 Sects 5, 6, 7 | Early Models of the Atom |
| Apr 26 | Chp 31 Sects 1, 2, 3 | Nuclear Physics, Structure of Nucleus |
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| May 1 (last class) | Chp 31 Sects 4, 5, 6, | Nuclear Decay, Nuclear Reactions, Fission, Fusion |
| May 3 (Reading Day: Wed  9-10:30am) | Review session for Final |  |
| **May 5 (Friday)**  10:30am-12:30pm | **FINAL EXAM (cumulative)** |  |